



# **How to Lower Your Energy Bill and Be More Comfortable This Summer**

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*This presentation is for information only. Every reasonable effort has been made to ensure the accuracy of the information. However, individual programs are subject to regulation and may change, and individual results will vary.*



# Energy Use Facts

- A typical home in Colorado consumes 645 KWH/month\*; with a current cost of ~\$65/month
- A typical home in Colorado, in January, consumes 147 Therms/month\*; with a cost this January of ~\$105/month

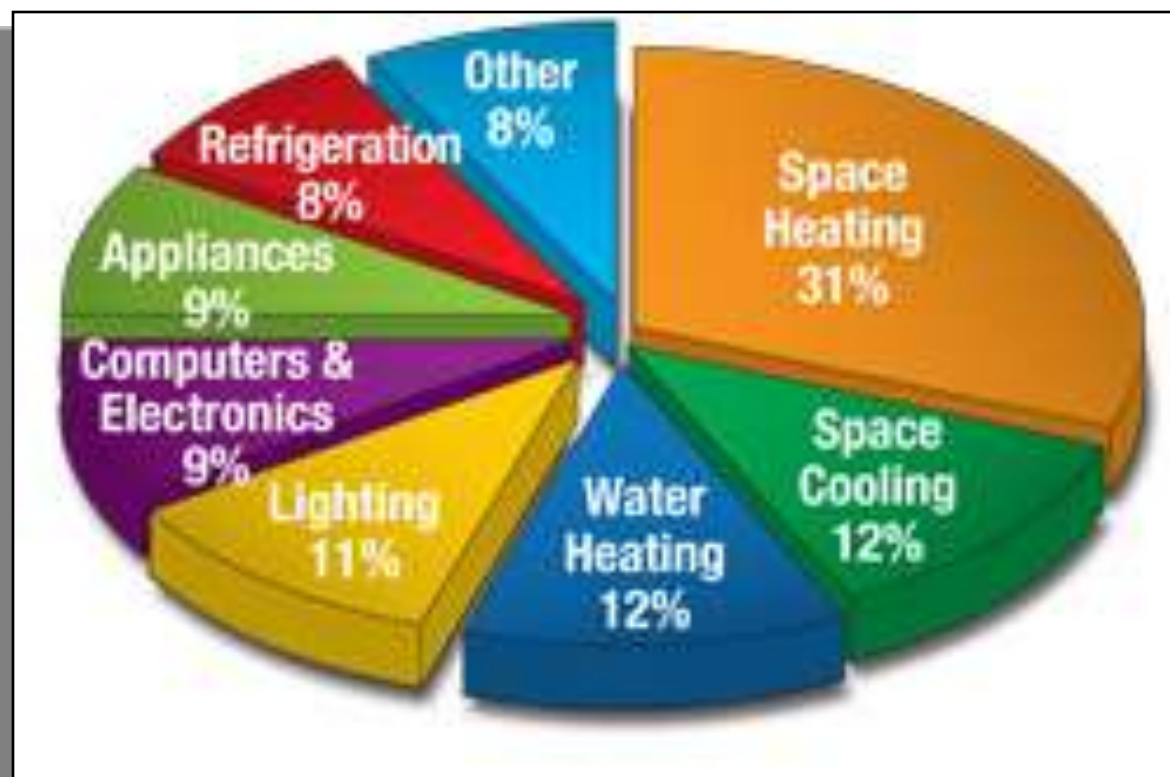
\* Based on the Governor's Energy Office data from January 2008

# Energy Use Facts

- The average home in the United States produces ~36,000 pounds of CO<sub>2</sub> in one year.
- While the average automobile in the United States produces ~18,000 pounds of CO<sub>2</sub> in one year (based on 22 mpg, 14,000 miles/year)
- Each Therm (100K BTU) of natural gas not consumed equals a reduction in CO<sub>2</sub> of 11.9 lbs
- Each Kwh not consumed equals a reduction of 2.2 lbs of CO<sub>2</sub> (in XCEL Energy service territory).

# Energy Use in the Home

*Heating and cooling comprises nearly half of the average household's energy costs*



Source: 2007 Buildings Energy Data Book, Table 4.2.1., 2005 energy cost data.

# Efficiency and Conservation

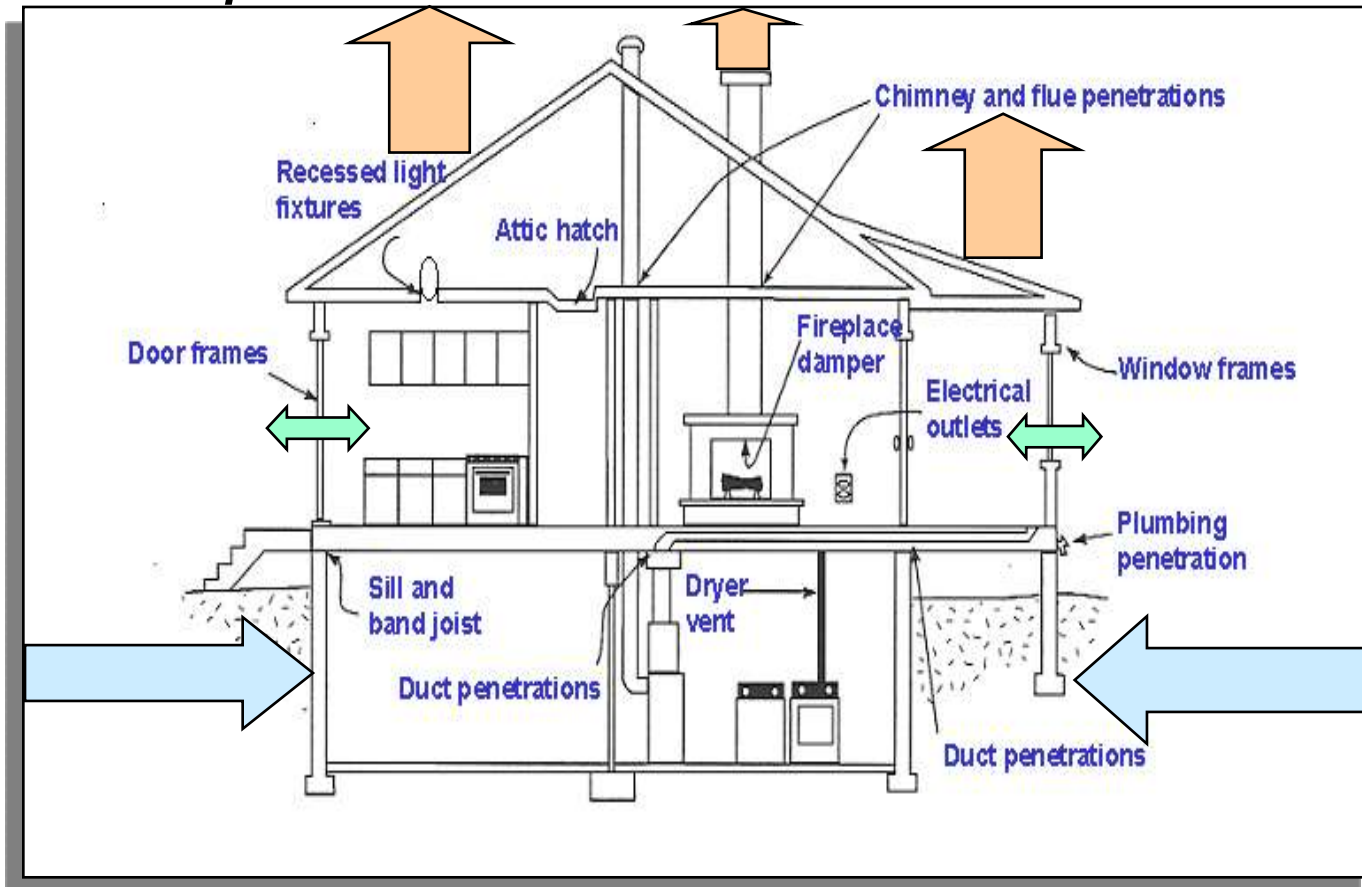
*There are several areas in your home where you can make adjustments to reduce your energy bill and increase comfort*



- Air Leaks and Insulation
- Heating and Cooling
- Water Heating
- Lighting
- Appliances
- Lifestyle

# Where Your Home Leaks

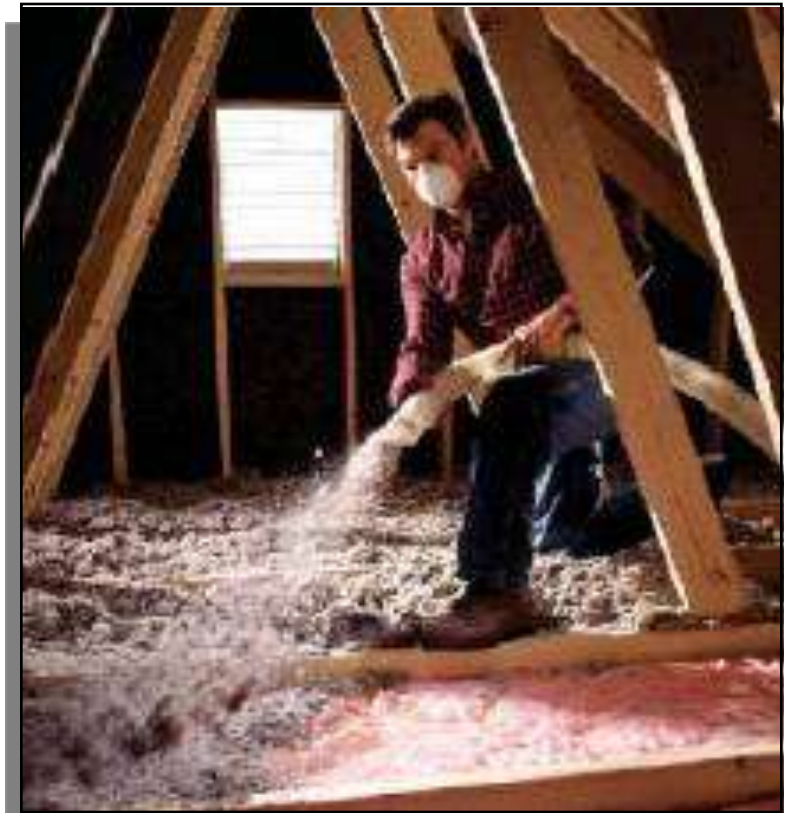
*Air enters at the lower levels and exits at the top. This is known as Stack Effect*



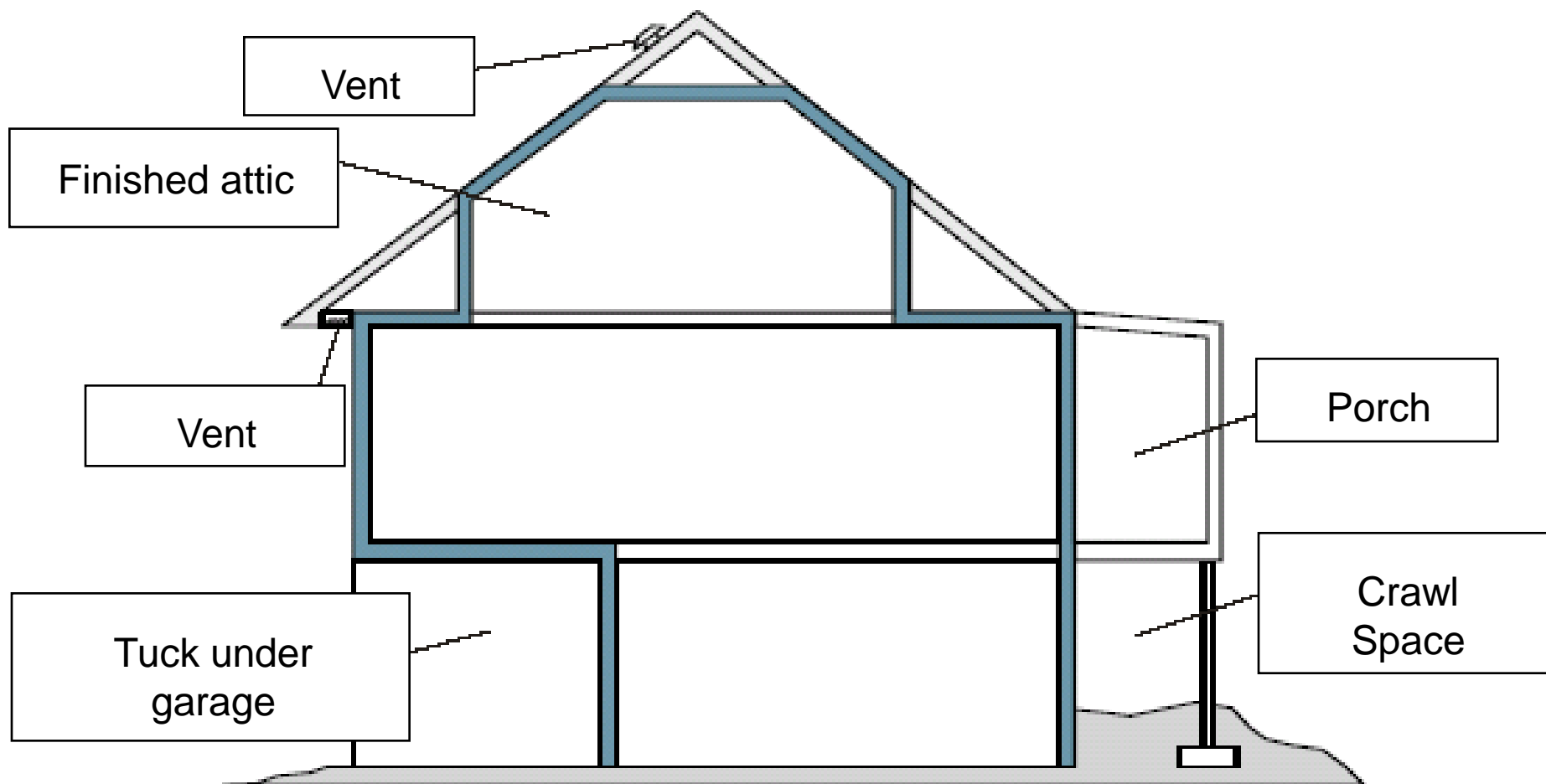
# Insulation

*Properly insulate to maintain your home's warmth*

- Check insulation in your attic (min. R-38, 11" cellulose, 16" fiberglass blown, 12" fiberglass batt)
- Check for insulation in your walls
- Insulate your basement and your garage (between garage and living space)



# Where to Insulate



# Insulate, Insulate, Insulate!

*How Much Do I Need ?*

Attic	at least R-38, can go R-50
Walls	to at least R-19 or 13 (depending on wall thickness)
Kneewalls, Air and/or Radiant barrier	to R-13 (with air barrier on attic side)
Basements	to at least R-11
Crawlspace	to at least R-11

\*R-value = Resistance to conductive heat loss. The higher the R-value the better.

# Attic Insulation

Blown-in or Batts,  
Fiberglass or Cellulose



# Wall Insulation

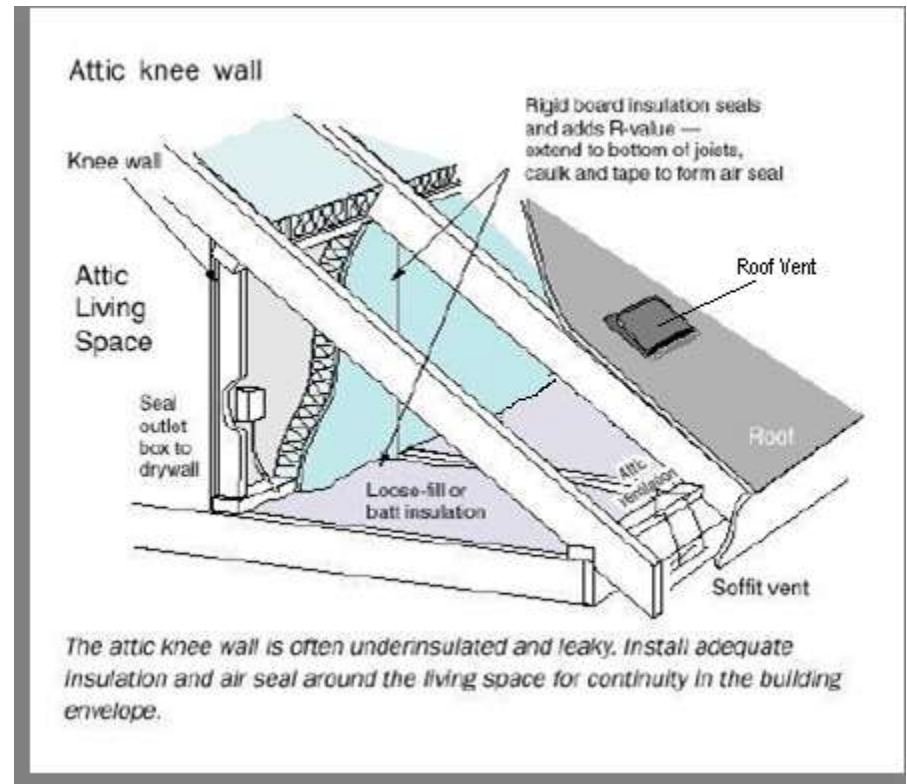
- The insulation is usually made of fiberglass or cellulose. Foam spray and sheets of foam can also be used
- 2x4 walls should be at least R-11 & 2x6 walls at least R-19; the key is making sure the walls are completely filled
- Many houses built between WWII and mid 1970's were built *without* wall insulation



# Walls And Knee Walls

*The attic knee wall is often under-insulated and leaky*

- Blown-in or batts
- Fiberglass
- Cellulose
- Fire-rated air and/or radiant barrier



# Tuck-Under Garage

*Rooms over tuck-under garage are typically under-insulated and have inadequate ventilation.*



- Make sure floor/ceiling is insulated properly.
- Air ducts may be in the wrong place or under-insulated.
- Cooling systems have to compete with hot car engines. Let your car cool down in the driveway.

# Basements & Crawlspaces

*Insulate with batts, blown product, or vinyl facing insulation*



Interior basement insulation with unfaced batts between framing.





Interior basement insulation with vinyl facing.

# Windows & Window Coverings



- Return on investment may be long term
- Help reduce the size of the furnace and (even more so) the size of the air conditioner needed
- Buy the best quality windows you can afford (vinyl or wood frame, double pane, low-e glass)
- Direction (orientation) matters
- Installing storm windows or even seasonal “window films” can help tremendously
- High quality window coverings can often save as much as new windows
- All these options can greatly increase your comfort!

# Window Information

 <b>NFRC</b> National Fenestration Rating Council CERTIFIED		 6110 HORIZ SLIDER VINYL 5'x15" GAP 1.0E-04	AIR FILL GRIDS
ENERGY PERFORMANCE RATINGS			
U-Factor (U.S. I-P)		Solar Heat Gain Coefficient	
0.35		0.31	
ADDITIONAL PERFORMANCE RATINGS			
Visible Transmittance			
0.52			
<small>Manufacturer stipulates that these ratings conform to applicable NFRC procedures for determining whole product performance. NFRC ratings are determined for a fixed set of environmental conditions and a specific product size. Consult manufacturer's literature for other product performance information. <a href="http://www.nfrc.com">www.nfrc.com</a></small>			
<small>This fenestration product has been certified by the manufacturer to meet the air infiltration requirements of Section 116(a)(1), 1992 California Energy Standards</small>			
SOUND RATING		28	
Tested to ASTM-E90			
28/515.006/L2		75LF/0627/0514-35	

- New windows have a sticker from the National Fenestration Rating Council (NFRC), a consumer's guide to buying windows.
- It tells you:
  - ▣ U-Value
  - ▣ Solar Heat Gain Coefficient (SHGC)
  - ▣ If it's a low-e window
- The lower the U-Value, the better insulated the window. U-Value is the inverse of R-Value

# Window Information

- Orientation – East, West, and North facing windows impact cooling
- Close blinds and shades during the day, and then open at night
- Solar screens
- Awnings
- Shading through landscaping
  - Deciduous trees shade your house from the sun and could save up to 8% on cooling costs

# Lighting

## *Turn down your lighting costs*

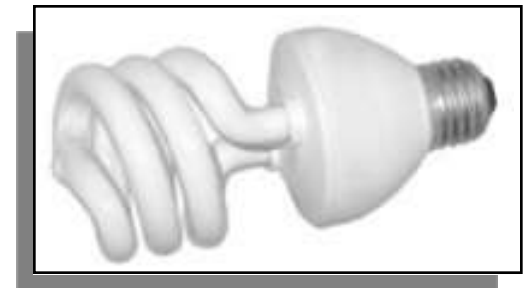
- Turn off lights when not in use
- Install dimmers and motion sensors
- Install three way bulbs where possible because they provide light where needed instead of over-lighting with a single high wattage bulb
- For outdoor lighting, consider motion-detector and photocells for highest efficiency
- Utilize compact fluorescents



# Compact Fluorescents

*If all 110 million households in America replaced just one 60-watt bulb with a CFL, the energy saved would power a city of 1.5 million people*

- One CFL will outlast 10 regular bulbs (10,000 hours vs. 750 hours)
- Uses up to 75 percent less energy and produces up to 90 percent less heat
- Available for purchase at [xcelenergy.com/homelighting](http://xcelenergy.com/homelighting)



# Appliances and Electronics



*Look for appliances that are Energy Star Rated*

- Use heat producing appliances when it's cooler
- Keep your appliances cleaned and maintained
- Consider replacing refrigerators or eliminating one
- Use the power management features for your computer and monitor



# Efficient Water Heating

*Save big on water heating costs by reducing heat loss and hot water usage*



- Set water temperature to 120 degrees
- Repair leaky faucets
- Insulate water heater and pipes
- Use low-flow shower heads and faucets
- Maintain your water heater
- Use vacation setting when out of town
- On-demand “tankless” water heaters are more efficient

# Cooling

*Small changes can lead to big savings*

- Use a programmable thermostat
- Set thermostat to the highest temperature you find comfortable, raise at night and periods you're away
- Use exhaust fans only as needed
- Change your furnace filter monthly
- Seal and insulate air ducts
- Keep cooling equipment maintained
- Provide shade for your A/C to reduce cooling costs



# Whole House Fans & Box Fans

- Draws cool nighttime air in and forces out hot air that built up during the day
- Be certain to open basement/lower level windows for optimum operation
- When air moves around in your home, it creates a wind-chill effect
- A mere two-mile-per-hour breeze will make your home feel four degrees cooler
- Ceiling fans and portable oscillating fans are inexpensive to operate



# Evaporative Cooler

- Works well in low-humidity areas
- Cool outdoor air by passing it over water-saturated pads
- Cost about one-half as much as central A/C to install and use about one-quarter as much energy
- Require more frequent maintenance
- Get several bids, and be sure your contractor is licensed & gets a permit



# Air Conditioning

- Make sure the rest of your house is well sealed & insulated first
- Have your contractor size the equipment properly
- Rated by Seasonal Energy-Efficiency Ratings (SEER)
- Check the yellow “energy guide” label for ratings, and look for Energy Star certification
- Get several bids, and be sure your contractor is licensed & gets a permit



# Cooling Equipment

*Keep it running and in good shape*

- Annual inspection (check for correct charge & airflow)
- Keep blower(s) & coils clean and clear
- Controls adjusted for optimum operation
- Keep filters clean (forced air unit) – Check monthly, clean/change often
- Ductwork should be well sealed & insulated
- Keep your thermostat set to the highest temperature you find comfortable

# Getting Started

- Visit [xcelenergy.com/HomeRebates](http://xcelenergy.com/HomeRebates)
- Call the Home Solutions Center at 1-800-895-4999
- Consider getting an energy audit
  - ▣ Check for insulation levels and improvements
  - ▣ Check for air leakage using a Blower Door
  - ▣ Check furnace and distribution systems
    - ▣ Measure efficiency, safety

# **Xcel Energy**

## **Efficiency Programs 2009/2010**

- **Programs provide rebates and incentives for energy efficiency**
  - **Cash rebates for energy-efficient equipment and systems**
  - **Funding to help pay for studies that identify cost-saving measures**
- **Available to all Colorado Xcel Energy customers**

<b>Home Lighting and Recycling</b>	<b>CFL's available via web, inserts and retail events; CFL recycling at Ace Hardware stores</b>
<b>Refrigerator Recycling</b>	<b>Seasonal campaigns offering a rebate for recycling secondary refrigerators</b>
<b>Saver's Switch</b>	<b>Cycled air conditioner demand response summer program</b>
<b>Evaporative Cooling Rebates</b>	<b>Tiered rebates based on efficiency and cubic feet/minute</b>
<b>Insulation Rebates</b>	<b>Rebates for additional wall, attic and attic bypass insulation</b>

# **Xcel Energy**

## **Efficiency Programs 2009/2010**

<b>Heating System Rebates</b>	<b>Prescriptive tiered rebates for high efficient furnaces and boilers</b>
<b>Water Heater Rebates</b>	<b>Prescriptive tiered rebates for high efficiency water heaters (storage and tankless)</b>
<b>Energy Efficient Waterheads</b>	<b>Encouraging use of energy and water saving showerheads by free distribution of units</b>
<b>School Education Kits</b>	<b>Teacher's lesson plan and kit with low cost measures &amp; educational materials</b>
<b>Home Energy Audits</b>	<b>Tiered audit offering (Standard/Blower Door/Infrared)</b>

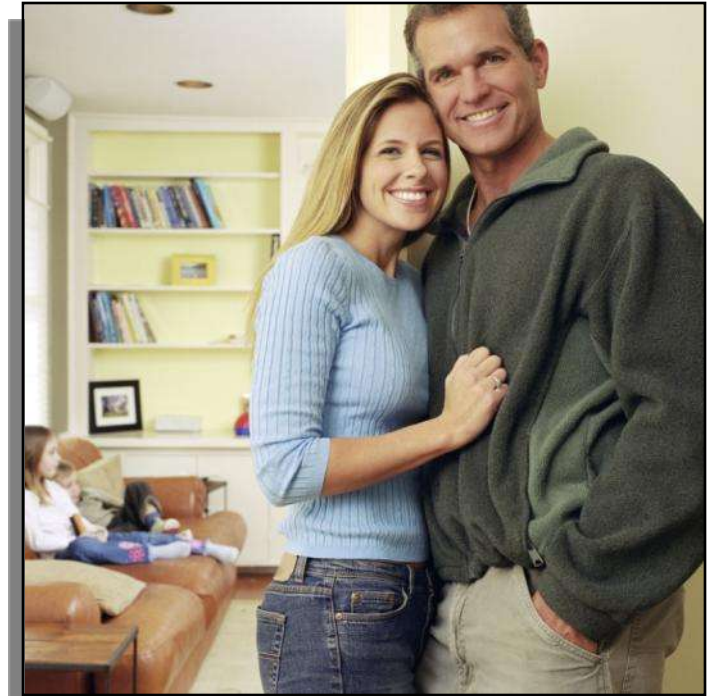
# Xcel Energy

## Efficiency Programs 2009/2010

<b>ENERGY STAR® New Homes</b>	<p>Test performance and provide rebates for new homes</p> <ul style="list-style-type: none"> <li>◉ Modeled shell design and tested performance</li> <li>◉ Performance modeling of heating and cooling systems</li> </ul>
<b>Home Performance with ENERGY STAR®</b>	<ul style="list-style-type: none"> <li>◉ Whole house approach to existing homes</li> <li>◉ Promote with Home Energy Audit program</li> <li>◉ Several measures included</li> </ul>
<b>Single &amp; Multi-Family Weatherization programs</b>	<ul style="list-style-type: none"> <li>◉ Attic, wall, floor, crawl space insulation</li> <li>◉ Air infiltration reduction and duct sealing</li> <li>◉ High efficiency furnaces and CFL's</li> <li>◉ Replace inefficient refrigerators</li> </ul>
<b>Easy Savings Energy Kits</b>	<p>Partner with third parties to identify and distribute educational materials and a kit containing low cost measures to customers</p>
<b>Non-Profit Energy Efficiency Program</b>	<p>Partner with Energy Outreach Colorado for auditing and upgrading efficiency within buildings of non-profit businesses that serve low-income customers</p>

# How You Can Help

- Make energy efficient changes to your home that will lower your energy bills and help conserve our natural resources.
- Contribute to Energy Outreach Colorado by checking-off a donation on your Xcel Energy bill.
- If you need help paying your energy bills, call 1-866-HEAT-HELP.





# Questions?